

Claims

- [c1] A method for constructing a lateral hole departing from a main well at a determined depth, the lateral hole having a direction of elongation forming a determined angle with the main well, the method comprising:
positioning a drilling machine at the determined depth in the main well (21);
drilling the lateral hole departing from a wall of the main well, in substantially the direction of elongation forming the determined angle with the main well, using the drilling machine (22);
constructing a tubular for the lateral hole at a downhole location (23);
positioning the constructed tubular into the lateral hole (24).
- [c2] The method according to claim 1 further comprising :
positioning the constructed tubular (305, 905, 1005) into the lateral hole (303, 903, 1003) during the drilling;
connecting a drill bit (307, 907, 1007) at an end of the constructed tubular (305, 905, 1005); and
using the constructed tubular (305, 905, 1005) as a drill string (305a) to drill the lateral hole (303, 903, 1003).
- [c3] The method according to any one of claims 1 to 2 wherein
the direction of elongation is substantially perpendicular to a longitudinal direction of the main well (302, 602, 902, 1002).
- [c4] The method according to any one of claims 1 to 3, further comprising:
constructing the tubular (305) at the downhole location from a band of metal (314);
unwrapping the band of metal (314, 614, 914, 1014) from a storage roll (306, 606, 906, 1006);
wrapping the band of metal (314, 614, 914, 1014) following a spiral to obtain the tubular (305, 605, 905, 1005).

- [c5] The method according to claim 4, further comprising :
storing the storage roll (316, 306, 606, 906) at the downhole location in the
drilling machine (301, 601, 901).
- [c6] The method according to claim 4, further comprising :
storing the storage roll (1006) at a surface location.
- [c7] The method according to any one of claims 1 to 3, wherein the tubular (305,
905) is constructed at the downhole location from a reserve of material, the
reserve of material having a size adapted to be stored in the drilling machine
(301, 901).
- [c8] The method according to claim 7, wherein the reserve of material contains at
least a rolled band of metal (306, 906), and wherein the constructing of the
tubular (305, 905) is performed by wrapping the band of metal (314, 914)
following a spiral.
- [c9] The method according to claim 8, further comprising:
jointing the wrapped band of metal.
- [c10] The method according to claim 9, wherein the jointing is performed by spot
welding.
- [c11] The method according to claim 9 wherein the jointing is performed by
permanent plastic lip pressing.
- [c12] The method according to any one of claims 9 to 11 further comprising:
constructing a strippable slotted liner (618) along a zone of communication
(619) with a reservoir (617);
pumping a cement fluid behind the tubular (605) along a determined portion of
the tubular, the determined portion of the tubular being distinct from the
zone of communication (619) with the reservoir (617).
- [c13] The method according to claim 12 wherein:

the strippable slotted liner is constructed from a slotted band of metal (74);
the slotted band of metal (74) comprises a slotted layer (75) and a thin layer
(72), the thin layer (72) covering the slotted layer (75);
the forming of the strippable slotted layer is performed by peeling off the thin
layer (72).

- [c14] The method according to claim 13 wherein the peeling is performed by pulling
on a cable (76) attached to an end of the thin layer (72).
- [c15] The method according to any one of claims 4, 5, 6, 8, 9, 10, 11, 12, 13 or 14
further comprising:
applying a left-hand torque (83) onto the wrapped band of metal (82) in order
to expand the tubular.
- [c16] The method according to claim 7 wherein
the reserve of material comprises a plurality of short pipes;
and further comprising :
jointing the short pipes together to obtain the tubular.
- [c17] The method according to claim 14 wherein the jointing of the short pipes is
performed by screwing the short pipes to each other by threads.
- [c18] A drilling machine (301, 601, 901, 1001) for constructing a lateral hole (303,
603, 903, 1003) departing from a main well (302, 602, 902, 1002) at a
determined depth, the lateral hole (303, 603, 903, 1003) having a direction of
elongation forming a determined angle with the main well (302, 602, 902,
1002), the drilling machine (301, 601, 901, 1001) comprising:
drilling means (307, 607, 907, 1007) to drill the lateral hole (303, 603, 903,
1003), departing at the determined depth from a wall of the main well
(302, 602, 902, 1002), in substantially the direction of elongation
forming the determined angle with the main well (302, 602, 902, 1002);
constructing means (315, 616, 915, 1015) to construct a tubular (305, 605, 905,
1005) for the lateral hole (303, 603, 903, 1003) at a downhole location;

positioning means (313, 613, 913, 1013) to position the constructed tubular in the lateral hole (303, 603, 903, 1003).

- [c19] The drilling machine (301, 601, 901, 1001) of claim 18, further comprising:
a drill bit (307, 607, 907, 1007) at an end of the constructed tubular (305, 605, 905, 1005) to drill the lateral hole.
- [c20] The drilling machine (301, 901, 1001) of claim 19, further comprising a reserve of material from which the tubular is constructed.
- [c21] The drilling machine (301) of claim 20, wherein
the reserve of material is stored inside the drilling machine (301);
the reserve of material comprises an active rolled band of metal (306), the active rolled band of metal (306) being oriented in a direction substantially perpendicular to the direction of elongation;
the drilling machine (301) further comprises:
a short shaft (313) between the active rolled band of metal (306) and the constructed tubular (305).
- [c22] The drilling machine (301) of any one of claims 18 to 21, the drilling machine (301) further comprising:
a motor (309) to generate a rotation;
a transmission shaft (310) to transmit the rotation to the drill bit (307);
a pushing system (311) to generate an axial force;
a lever system (312) to transmit the axial force to the drill bit (307);
- [c23] The drilling machine (901) of claim 20, wherein
the reserve of material is stored in the drilling machine (901);
the reserve of material comprises an active rolled band of metal (906), the active rolled band of metal (906) being oriented in a direction

substantially perpendicular to a longitudinal direction of the main well (902);

the drilling machine (901) further comprises:

a motor (909) to generate a rotation force;

a pushing system (911) to generate an axial force;

a short shaft (913) that is bended between the active rolled band of metal (906) and the constructed tubular (905), the short shaft (913) transmitting the rotation force and the axial force to the drill bit (907);

a guidance system (915) to guide the short shaft (913).

[c24] The drilling machine of any one of claims 21 to 23 further comprising wrapping means to wrap the band of metal (314, 614, 914, 1014) following a spiral;
a jointing device (315, 616, 915, 1015) to joint the wrapped band of metal (314, 614, 914, 1014).

[c25] A system for constructing a lateral hole (303, 603, 903, 1003) departing from a main well (302, 602, 902, 1002) at a determined depth, the lateral hole (303, 603, 903, 1003) having a direction of elongation forming a determined angle with the main well (302, 602, 902, 1002), the system comprising a drilling machine (301, 601, 901, 1001) according to any one of claims 18 to 24; and
positioning means (304) to position the drilling machine (302, 602, 902, 1002) at the determined depth.

[c26] The system of claim 25 further comprising:
a strippable slotted liner (618) in the lateral hole (603), the strippable slotted liner (618) allowing a communication between the lateral hole (603) and a reservoir (617) along a zone of communication with the reservoir (617);
pumping means to pump a cement fluid behind the tubular (605) along a determined portion of the tubular (605), the determined portion of the

tubular being distinct from the zone of communication (619) with the reservoir (617).

[c27] The drilling machine of claim 20, wherein:
the reserve of material comprises a plurality of short pipes.